#include <stdio.h>

#include <iostream>

#include <opencv2/highgui/highgui.hpp>

#include <opencv2/imgproc/imgproc.hpp>

#include <opencv2/core/core.hpp>

using namespace cv;

using namespace std;

int a, b, i, j, r;

float r1, d, f;

int main(){

Mat img = imread("lena.jpg",CV\_LOAD\_IMAGE\_GRAYSCALE);

a = img.rows/2; b= img.cols/2;

for(i=0; i<img.rows; i++){

for(j=0; j<img.cols; j++){

r1 = sqrt((a-i)\*(a-i) + (b-j)\*(b-j));

d = sqrt((a\*a + b\*b));

r = img.at<uchar>(i,j);

img.at<uchar>(i,j)= r\*(1-(r1/d));

}

}

imshow("lena1", img);

waitKey(0);

}